the subarea and types of sensing data that have been collected previously in the subarea and have not expired.

29. The method of claim **25**, wherein said selecting one or more user equipments from the multiple user equipments for collection of participatory sensing data, based on multiple utility values obtained for the multiple user equipments further comprises one of the following operations:

comparing each of the multiple utility values with a predetermined threshold; and

sorting the multiple utility values.

30. The method of claim **25**, further comprising:

after selecting user equipments that will participate in the sensing data collection, notifying the user equipments to perform the sensing data collection; and

receiving and storing the sensing data that are collected by the user equipments within the predetermined area.

31. The method of claim **25**, wherein execution of the method is triggered by an event, a cycle or a request.

32. The method of claim **25**, wherein the utility value is obtained with a formula as below:

$$U_\alpha = \sum_{L_i} \int_{t=0}^{\Delta T} p_{Li}^t(\alpha) |C_{L_i}^\alpha - A_{L_i}^t| dt$$

where U_α denotes the utility value of a user equipment α; L_i denotes the i-th subarea; ΔT denotes a cycle for selecting user equipments to participate in the sensing data collection; $p_{Li}^t(\alpha)$ denotes a probability that the user equipment α is located in the subarea L_i at a predetermined time t; $C_{L_i}^\alpha$ denotes a set of the types of sensing data that can be provided by the user equipment α in the subarea L_i; $A_{L_i}^t$ denotes a set of the types of sensing data that are recorded in the subarea L_i and are not expired at the predetermined time t.

33. The method of claim **25**, wherein the sensing data comprise sensing data that are collected by the user equipment and relate to at least one type of humidity, temperature, air quality, location, brightness, vibration, sound and scene of the respective subareas.

34. An apparatus, comprising:

at least one processor and at least one memory containing computer program code;

the processor and the memory configured to, with the processor, cause the apparatus to at least execute, for each of multiple user equipments:

calculate probabilities that the user equipment is located in respective subareas of a predetermined area at a predetermined time by using historical movement information of the user equipment;

determine types of sensing data to be collected when the user equipment is located in the respective subareas, based on capability information of the user equipment for collecting sensing data; and

obtain a utility value of the user equipment associated with sensing data collection within the predetermined area, based on the probabilities calculated for the respective subareas and the determined types of the sensing data; and

the processor and the memory configured to, with the processor, cause the apparatus to select one or more user equipments from the multiple user equipments for collection of participatory sensing data, based on multiple utility values obtained for the multiple user equipments.

35. The apparatus of claim **34**, wherein the processor and the memory are configured to, with the processor, cause the apparatus to at least execute:

receive and storing location information about movement of the user equipment among the respective subareas and the capability information for collecting sensing data before calculating the probabilities.

36. The apparatus of claim **34**, wherein the processor and the memory are configured to, with the processor, cause the apparatus to at least execute:

build a Markov chain model based on the historical movement information, wherein the historical movement information relates to statistical information on location transfer of the user equipment among the respective subareas and stay time of the user equipment in the respective subareas; and

calculate the probabilities that the user equipment is located in the respective subareas of the predetermined area at the predetermined time by using the Markov chain model.

37. The apparatus of claim **34**, wherein the processor and the memory are configured to, with the processor, cause the apparatus to at least execute:

determine the types of the sensing data to be collected when the user equipment is located in a subarea, based on types of sensing data that can be collected when the user equipment moves to the subarea and types of sensing data that have been collected previously in the subarea and have not expired.

38. The apparatus of claim **34**, wherein the processor and the memory are configured to, with the processor, cause the apparatus to at least execute:

compare each of the multiple utility values with a predetermined threshold; and

sort the multiple utility values.

39. The apparatus of claim **34**, wherein the processor and the memory are configured to, with the processor, cause the apparatus to at least execute:

after selecting user equipments that will participate in sensing data collection, notify the user equipments to perform the sensing data collection; and

receive and store the sensing data that are collected by the user equipments within the predetermined area.

40. The apparatus of claim **34**, wherein execution of the apparatus is triggered by an event, a cycle or a request.

41. The apparatus of claim **34**, wherein the utility value is obtained with a formula as below:

$$U_\alpha = \sum_{L_i} \int_{t=0}^{\Delta T} p_{Li}^t(\alpha) |C_{L_i}^\alpha - A_{L_i}^t| dt$$

where U_α denotes the utility value of a user equipment α; L_i denotes the i-th subarea; ΔT denotes a cycle for selecting user equipments to participate in the sensing data collection; $p_{Li}^t(\alpha)$ denotes a probability that the user equipment α is located in the subarea L_i at a predetermined time t; $C_{L_i}^\alpha$ denotes a set of the types of sensing data that can be provided by the user equipment α in the